

Effects of Annealing and Annealing Plus Pressure on Devitrification of $\text{Al}_{87}\text{Ni}_7\text{Gd}_6$
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Annealing studies at different temperatures, as well as those conducted with 1.1 GPa hydrostatic pressure, were analyzed with micro-hardness, XRD, DSC and quantitative TEM on amorphous ribbons of $\text{Al}_{87}\text{Ni}_7\text{Gd}_6$. The studies were performed to investigate the evolution of structure under different conditions and to particularly examine the effects of superimposed hydrostatic pressure during annealing. This amorphous alloy devitrifies at low temperatures via the precipitation of nano-crystalline α -Al particles. The effects of these various exposures on the amount of devitrification has been quantified using a variety of analytical techniques (i.e. XRD, DSC, TEM). In addition, the effects of devitrification on the mechanical properties has been quantified using micro-hardness indentation and uniaxial tension tests. The various annealing conditions increase the micro-hardness, coincident with an increase in the volume fraction of aluminum nano-crystals. Work supported by DARPA SAM Program through Boeing Company with supply of materials by G. Shiflet.